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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/614,462	07/07/2003	Tzu-Chiang Sung	252011-1490	7583
47390	7590	10/12/2005	EXAMINER	
THOMAS, KAYDEN, HOSTEMEYER & RISLEY LLP 100 GALLERIA PARKWAY SUITE 1750 ATLANTA, GA 30339			LANDAU, MATTHEW C	
			ART UNIT	PAPER NUMBER
			2815	

DATE MAILED: 10/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/614,462	Applicant(s) SUNG ET AL.	
	Examiner Matthew Landau	Art Unit 2815	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 August 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5,7-11,13,15-17,19,21-25 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 8-11,13,22-25 and 27 is/are allowed.
- 6) ☒ Claim(s) 1-3,5,7,15-17,19 and 21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5, 7, 15-17, 19, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smayling et al. (US Pat. 5,275,961, hereinafter Smayling) in view of Baek (US Pat. 6,465,845).

Regarding claims 1, 7, 15, and 21, Figure 16g of Smayling discloses a high voltage device comprising: a substrate 152; first and second wells (630 and 626, respectively) respectively of a first type (p-type) and a second type (n-type) in the substrate; a gate 634 formed on a junction between the first and second wells, without a field oxide between the gate and the first and second wells; first and second doped regions (640 and 642, respectively), respectively formed in the first and second wells and on both sides of the gate; a third doped region 644 of the first type in the first well; and a fourth lightly doped region 636 of the second type adjacent to the first doped region and beneath the gate. Smayling does not appear to disclose the third doped region adjacent to the first doped region. Figure 3I of Baek discloses a high voltage device with first and second wells (34 and 33, respectively) of opposite conductivity type, first and second regions (36 and 37, respectively) in the first and second wells, and a third doped region 38 adjacent the first region. In view of such teaching, it would have been obvious to the ordinary

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artisan at the time the invention was made to modify the invention of Smayling by having the third doped region adjacent the first doped region as disclosed by Baek. As disclosed in Figure 16h of Smayling, the first and third regions (640 and 644) are connected to the same metal layer by two separate contacts, and are therefore shorted together. Since they are already shorted, placing the regions adjacent to one another so that they can be contacted by a single contact would decrease the lateral space occupied by the device. Decreasing device size is a well-known industry goal. Regarding claim 15, Smayling also discloses the method of making the above device.

Regarding claims 2 and 16, Figure 16g of Smayling discloses field oxides 210 isolating the high voltage device from other devices on the substrate.

Regarding claims 3 and 17, Figure 16g of Smayling discloses a gate oxide 218 on the substrate, a conducting layer 634 on the gate oxide, and spacers 250 on two sides of the gate oxide and conducting layer.

Regarding claims 5 and 19, Figure 16g of Smayling discloses there is a spacing of the second doped region 642 to the gate 634.

Allowable Subject Matter

Claims 8-11, 13, 22-25, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The reasons for allowance were given in the Office Action mailed on May 31, 2005.

Response to Arguments

Applicant's arguments filed August 2, 2005 have been fully considered but they are not persuasive.

Applicant argues regarding Smayling that "the n- region 636 overlaps or surrounds the n+ region 640, rather than is adjacent to the n+ region 640". This is not persuasive because it can still be considered that region 640 is adjacent region 636. Merriam Webster's Collegiate Dictionary (10th edition) defines adjacent as "having a common endpoint or border". As shown in Figure 16g of Smayling, regions 640 and 636 share a border. Therefore, the two regions are adjacent. Applicant further argues that, "the n+ region 640 of Smayling must be formed within a low density implanting region 634. As a result, the n+ region 640 must be separated from the back gate contact region 644 by the low density implanting region 634. The n+ region 640 cannot be formed adjacent to the back gate contact region 644, due to the existence of the low density implanting region 634". It is believed that Applicant meant to say region 636 instead of 634, since 634 refers to the gate in Figure 16g of Smayling. For clarification, it is noted that the point of the above 103 rejection was to modify Smayling by placing region 644 adjacent region 640, without region 636 in between the two regions (as taught by Baek). It appears that Applicant is merely arguing that since Smayling doesn't show such a configuration, it can't be done. Applicant has not provided any evidence or reasoning to support the allegation that "region 640 cannot be formed adjacent to the back gate contact region 644". The Examiner, however, has provided technical reasoning as to why region 644 can be formed adjacent to region 640. This reason essentially being that since regions 644 and 640 are connected to the

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same metal contact (i.e., electrically shorted), the operation of the device would not be affected if the two regions are in contact with each other instead of being physically separated. Smayling does not disclose any reason why region 636 must be between regions 640 and 644, nor has Applicant provided any such reason. Therefore, there is no reason why Smayling cannot be modified in the manner suggested in the above rejection. The motivation for the combination was also provided in the above rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew C. Landau whose telephone number is (571) 272-1731.

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The examiner can normally be reached from 8:30 AM - 5:30 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on (571) 272-1664. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should any questions arise regarding access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TOM THOMAS
SUPERVISORY PATENT EXAMINER

Matthew C. Landau

Examiner

October 1, 2005